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PHOTO GUIDE FOR APPRAISING DOWNED WOODY FUELS IN MONTANA FORESTS:

Grand Fir–Larch–Douglas-Fir, Western Hemlock, Western Hemlock–Western Redcedar, and Western Redcedar Cover Types

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RESEARCH SUMMARY

Four series of color photographs show different levels of downed woody material resulting from natural processes in four forest cover types in Montana. Each photo is supplemented by inventory data describing the size, weight, volume, and condition of the debris pictured. A subjective evaluation of potential fire behavior under an average bad fire weather situation is given.

Instructions are provided for using the photos to describe fuels and to evaluate potential fire hazard.

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[1]Subsequently assigned to Institute of Northern Forestry, Fairbanks, Alaska.

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PURPOSE OF PHOTO SERIES

This photo guide contains information that can be used to appraise the dead woody debris on the forest floor of grand fir - larch - Douglas-fir, western hemlock, western redcedar - western hemlock, and western redcedar forest cover types (SAF 1954) in Montana. The guide is primarily for natural (nonslash) fuels, although some photos include old logging and thinning slash. Natural fuels result from wind, snow, and mechanical breakage, natural pruning of lower branches, needle fall, windthrow, blowdown, and the falling of trees killed by insects, disease, fire, and competition for light and moisture. The old logging and thinning slash shown has either been treated or left untreated. It can therefore be considered a part of the natural fuel complex.

This guide is designed to help forest managers describe the deadwood on the forest floor, to estimate the amount of such material, and to evaluate its fire hazard. The photos show a variety of fuel situations that exist in grand fir, western hemlock, and western redcedar forests in Montana and surrounding Northern Rocky Mountain areas.

The fuel appraisal obtained from this guide can be used to plan fire management strategies including fire prevention, fuel treatment, prescribed fire, dispatching for fire suppression, and establishing criteria for unscheduled prescribed fires.

The photos provide a relatively quick and inexpensive aid for accomplishing fuel appraisal over large forested areas. Although the precision of this procedure is unknown, it is expected to be intermediate: less than standard fuel inventory but greater than designating a stylized fuel model such as used in the National Fire Danger Rating System.

Perhaps the strongest feature of this series is the fire potential rating with each photo. Alternative methods for evaluating fire potential are generally unavailable, and those methods that do exist are outdated or not well suited for rating nonuniform fuel situations.

USING THE PHOTOS

Arranging the Photos

The photos and accompanying data sheets are presented in two series:

Series 1—Grand fir - larch - Douglas-fir cover type.

Series 2—Western hemlock, western redcedar - western hemlock, and western redcedar cover types.

Within each series, the photos are arranged according to total fuel loading. The first photo in each series

shows the lightest fuel load, the last shows the heaviest load.

The Data Sheet

The fuel complex shown in each photo is described on an accompanying data sheet in terms of the following characteristics:

1. Forest cover type.
2. Montana habitat type.
3. Stand and site data: age of overstory dominants, average slope, aspect, elevation, and fire ecology group.
4. Down and dead woody fuel loadings by size class.
5. Other fuel data: average duff depth and for fuels 3 inches (7.62 cm) in diameter and greater, the average diameter, the percent rotten, and the volume of sound material.
6. National Fire Danger Rating System fuel model.
7. Stylized fuel model.

Symbols used for forest vegetation are the standard symbols for Northern Region plants (USDA Forest Service 1969). The symbols represent the first two letters of the generic name and the first two letters of the specific name of the plant species (such as ABGR - *Abies grandis*).

Describing the Fuel Complex

Several important fuel characteristics can be seen in each photo: (1) The amount of fuel in the different diameter classes, (2) the general condition of the fuel (sound versus rotten), (3) the distribution of the fuel over the area, and (4) the depth of the fuel (each black and white section on the plot marker is 1 foot [0.3048 m]). Consequently, the manager can use the photos to estimate values for these characteristics of woody debris on the forest floor.

To use the photos to describe downed woody fuels, simply inspect the fuel complex and then select the photo that most nearly compares with what is on the ground. Then use the information on the data sheet to describe the observed fuel complex.

Perhaps no one photo adequately represents the actual situation. If this is the case, select two photos that bracket the observed fuel complex and then interpolate between the values on the data sheets accompanying the selected photos.

Rather than trying to select one photo or a pair of photos that best reflects the entire fuel complex, the user could describe each of the above-mentioned fuel characteristics separately. This could be done by using the following procedure suggested by Maxwell and Ward (1976a, 1976b), as adapted by Koski and Fischer (1979):

1. Observe each of the characteristics of the fuel complex on the ground.
2. For each characteristic, select the photo that most nearly matches, or photos that bracket the observed situations.
3. For each characteristic, obtain a value from the data sheet accompanying the selected photo (or interpolate a value if a pair of photos was selected).

The above procedure should only be used when a single photo or a pair of photos can't be used to describe the observed situation. For most fuel situations, any improvement in estimates obtained by rating each fuel characteristic separately is not justified by the increased time it takes to get them.

These procedures refer to use of the photos at a specific point. This can be a representative point and the results applied to an entire forest stand. This method is satisfactory when the fuels are uniform throughout the stands. The photos can be used to sample when nonuniform fuels preclude the selection of a representative point. The procedure is as follows:

1. Establish 10 or more points, spread systematically through the stand.
2. At each point evaluate the fuels within clear eyesight.
3. Summarize the results as a simple average for the stand or express the results as the percent of area in several classes (for example, 40 percent of stand >10 tons/acre, 60 percent of stand <30 tons/acre).

Rating Fire Potential

The data sheet for each photo contains adjective ratings for five different expressions of fire behavior: rate of spread, intensity, torching, crowning, and resistance to control. An overall fire behavior potential rating is also given for the fuel complex pictured. The ratings are for an "average bad" fire weather situation defined as: 80°-90° F temperature (27°-32° C), 15-20 percent relative humidity, 10-15 mi/h windspeed (16-24 km/h), and 4 weeks since a significant rain (0.10 inch [0.25 cm] or greater).

This approach to estimating fire potential is not without precedent in the Northern Rocky Mountains. In many ways it is a refinement of the time-tested concept of fuel rating introduced more than 40 years ago by L. G. Hornby (1936).

The adjective ratings nil, low, medium, high, and extreme are defined as follows for each of the different expressions of fire behavior:

Rate of Spread

Nil—fire cannot sustain itself.
Low—spread will be slow and discontinuous.
Medium—uniform spread possible, but can be stopped by aggressive ground attack with hand tools.
High—spread will be rapid; indirect attack on fire front may be required for control.

Extreme—spread will be explosive; little chance of control until weather changes.

Intensity

Nil—fire cannot sustain itself.
Low—cool fire; very little hot spotting required for control.
Medium—fire will burn hot in places; aggressive hot spotting with hand tools likely to be successful.
High—too hot for sustained direct attack with hand tools; aerial tankers or large ground tanker required to cool fire front.
Extreme—direct ground attack not possible; air or ground tanker attack likely to be ineffective.

Torching

Nil—no chance of torching.
Low—occasional tree may torch-out.
Medium—pole-sized understory trees likely to torch-out.
High—Most of understory and occasional overstory trees likely to torch-out.
Extreme—entire stand likely to torch-out.

Crowning

Nil—sustained spread in crowns will not occur.
Low—sustained spread in crowns unlikely.
Medium—some crowning likely but will not be continuous.
High—sustained crowning likely.
Extreme—sustained crowning will occur.

Resistance to Control

Nil—no physical impediments to line building and holding.
Low—occasional tough spots but not enough to cause serious line building and holding problems.
Medium—hand line construction will be difficult and slow, but dozers can operate without serious problems.
High—slow work for dozers, very difficult for hand crews; hand line holding will be difficult.
Extreme—neither dozers nor hand crews can effectively build and hold line.

Overall

Nil—fire will not sustain itself.
Low—fire can be easily controlled by several smokechasers with hand tools.
Medium—aggressive crew-sized (6-10 persons) initial attack required for successful control.
High—aggressive crew-sized (25 persons) initial attack with substantial reinforcement required for successful control; 10 percent chance that initial control action will fail.
Extreme—90 percent chance that initial control action will fail.

Procedures for using the photos to estimate fire potential are the same as those given for describing the fuel complex.

PHOTO GUIDE DEVELOPMENT

This photo guide was developed using the technique explained by Fischer (1981), which involved the following steps:

1. The fuel complexes photographed were selected to represent the range of fuel situations observed to exist for the cover type in Montana.
2. Sample plots are generally laid out and photographed in accordance with procedures suggested by USDA Forest Service (1975).
3. Fuels were sampled and described using fuel inventory and computational techniques developed by Brown (1974).
4. Habitat types are according to Pfister and others (1977). Cover types are according to SAF (1954).
5. Fire potential ratings are based on subjective evaluation by experienced fire managers using the adjective ratings and definitions in the preceding section of this guide.
6. National Fire Danger Rating fuel model assignment was by the author using definitions provided by Deeming and others (1977). Stylized fuel model assignment was by the author using definitions provided by Albini (1976).
7. The fire ecology group assignment was by the author using the definitions provided by Davis and others (1980).
8. Stand and site data were obtained using standard forestry field techniques.

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SERIES 1

GRAND FIR - LARCH - DOUGLAS-FIR

SAF COVER TYPE 213


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DATA SHEET

Stand No. 16

FOREST COVER TYPE: SAF NO. 213, Grand fir - Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 521, Grand fir/queencup beadlily-queencup beadlily (ABGR/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.9	0.20
0.25-1	1.7	0.38
1-3	2.1	0.47
Subtotal 0-3	4.7	1.05
3-6	3.3	0.74
6-10	6.1	1.37
10-20	2.2	0.49
20+	0	0
SUBTOTAL 3+	11.6	2.60
TOTAL	16.3	3.65

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 2.6 in / 6.60 *cm*

Average diameter, 3+fuels: 5.5 in / 13.97 *cm*

Percent rotten, 3+fuels: 38 %

Volume of **sound** 3+fuels: 576 ft³/ac / 40.3 *m²/ha*

STAND AND SITE DATA

Age of overstory dominants:

PSME 120 yrs

ABGR 90 yrs

Average slope: 10 %

Aspect: northeast

Elevation: 3120 ft 951 *m*

Remarks: moist grand fir bottom

Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: low

Torching: medium

Crowning: low

Resistance to control: low

Overall Fire Potential MEDIUM

STAND LOCATION

National Forest: Lolo

Ranger District: Ninemile

Drainage: Mill Cr.

Photo taken: 9/22/76

By: W. C. Fischer


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DATA SHEET

Stand No. 15

FOREST COVER TYPE: SAF NO. 213, Grand fir - Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 521, Grand fir/queencup beadlily-queencup beadlily phase (ABGR/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.6	0.13
0.25-1	1.3	0.29
1-3	3.3	0.74
Subtotal 0-3	5.2	1.16
3-6	3.6	0.81
6-10	3.2	0.72
10-20	8.5	1.91
20+	0	0
SUBTOTAL 3+	15.3	3.44
TOTAL	20.5	4.60

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 3.0 in / 7.62 *cm*

Average diameter, 3+fuels: 5.9 in / 14.99 *cm*

Percent rotten, 3+fuels: 81 %

Volume of **sound** 3+fuels: 230 ft³/ac / 16.1 *m³/ha*

STAND AND SITE DATA

Age of overstory dominants:

ABGR	85 yrs
LAOC	82 yrs

Average slope: 20 %

Aspect: north

Elevation: 3450 ft 1052 *m*

Remarks: stream-side

Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: low

Intensity: low

Torching: medium

Crowning: low

Resistance to control: low

Overall Fire Potential LOW

STAND LOCATION

National Forest: Lolo

Ranger District: Ninemile

Drainage: Mill Cr.

Photo taken: 9/22/76

By: W. C. Fischer



DATA SHEET

Stand No. 63

FOREST COVER TYPE: SAF NO. 213, Grand fir - Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 510, Grand fir/beargrass (ABGR/XETE)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight Kg/m^2
0-0.25	0.4	0.09
0.25-1	1.9	0.43
1-3	0.7	0.16
Subtotal 0-3	3.0	0.68
3-6	3.6	0.81
6-10	8.3	1.86
10-20	7.4	1.66
20+	0	0
SUBTOTAL 3+	19.3	4.33
TOTAL	22.3	5.01

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
H/G	8/10

OTHER FUEL DATA

Average duff depth: 1.9 in / 4.83 *cm*

Average diameter, 3+fuels: 6.5 in / 16.51 *cm*

Percent rotten, 3+fuels: 31 %

Volume of **sound** 3+fuels: 1069 ft^3/ac / 74.8 m^3/*ha*

STAND AND SITE DATA

Age of overstory dominants:

PSME	125 yrs
ABGR	112 yrs
PICEA	93 yrs
ABLA	80 yrs

Average slope: 20 %

Aspect: northwest

Elevation: 4530 ft 1381 *m*

Remarks:

Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: medium

Torching: low

Crowning: low

Resistance to control: medium

Overall Fire Potential MEDIUM

STAND LOCATION

National Forest: Lolo

Ranger District: Missoula

Drainage: Rattlesnake Cr.

Photo taken: 7/13/77

By: W. C. Fischer


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DATA SHEET

Stand No. 65

FOREST COVER TYPE: SAF NO. 213, Grand fir - Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 521, Grand fir/queencup beadlily-queencup beadlily phase (ABGR/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.5	0.11
0.25-1	1.9	0.43
1-3	3.6	0.81
Subtotal 0-3	6.0	1.35
3-6	7.2	1.61
6-10	10.8	2.42
10-20	0	0
20+	0	0
SUBTOTAL 3+	18.0	4.03
TOTAL	24.0	5.38

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 2.6 in / 6.60 *cm*

Average diameter, 3+fuels: 5.0 in / 12.70 *cm*

Percent rotten, 3+fuels: 27 %

Volume of **sound** 3+fuels: 1258 ft³/ac / 88.0 *m³/ha*

STAND AND SITE DATA

Age of overstory dominants:

PICO	118 yrs
LAOC	110 yrs
ABGR	90 yrs

Average slope: 32 %

Aspect: southeast

Elevation: 4180 ft 1274 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: high

Torching: high

Crowning: medium

Resistance to control: high

Overall Fire Potential HIGH

STAND LOCATION

National Forest: Lolo

Ranger District: Missoula

Drainage: Rattlesnake Cr.

Photo taken: 7/14/77

By: W. C. Fischer



DATA SHEET

Stand No. 67

FOREST COVER TYPE: SAF NO. 213, Grand fir - Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 521, Grand fir/queencup beadlily-queencup beadlily phase (ABGR/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.7	0.16
0.25-1	2.9	0.65
1-3	2.4	0.54
Subtotal 0-3	6.0	1.35
3-6	5.5	1.23
6-10	12.2	2.73
10-20	3.2	0.72
20+	0	0
SUBTOTAL 3+	20.9	4.68
TOTAL	26.9	6.03

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 2.6 in / 6.60 *cm*

Average diameter, 3+fuels: 5.7 in / 14.48 *cm*

Percent rotten, 3+fuels: 73 %

Volume of **sound** 3+fuels: 452 ft³/ac / 31.6 *m²/ha*

STAND AND SITE DATA

Age of overstory dominants:

PSME	156 yrs
LAOC	127 yrs
ABGR	109 yrs

Average slope: 30 %

Aspect: southeast

Elevation: 4180 ft 1274 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: high

Torching: medium

Crowning: medium

Resistance to control: medium

Overall Fire Potential MEDIUM

STAND LOCATION

National Forest: Lolo

Ranger District: Missoula

Drainage: Rattlesnake Cr.

Photo taken: 7/14/77

By: W. C. Fischer


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5

DATA SHEET

Stand No. 25

FOREST COVER TYPE: SAF NO. 213, Grand fir - Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 521, Grand fir/queencup beadlily-queencup beadlily phase (ABGR/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	1.1	0.25
0.25-1	2.2	0.49
1-3	5.5	1.23
Subtotal 0-3	8.8	1.97
3-6	0.6	0.13
6-10	6.3	1.41
10-20	17.1	3.83
20+	2.6	0.58
SUBTOTAL 3+	26.6	5.95
TOTAL	35.4	7.92

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 4.0 in / 10.16 *cm*

Average diameter, 3+fuels: 10.0 in / 25.40 *cm*

Percent rotten, 3+fuels: 99 %

Volume of **sound** 3+fuels: 16 ft^3/ac / 1.1 m^3/ha

STAND AND SITE DATA

Age of overstory dominants:

PICEA	114 yrs
THPL	111 yrs
PSME	110 yrs
ABGR	110 yrs

Average slope: 10 %

Aspect: south

Elevation: 4050 ft 1234 *m*

Remarks: stream-side

Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: low

Intensity: medium

Torching: low

Crowning: low

Resistance to control: medium

Overall Fire Potential MEDIUM

STAND LOCATION

National Forest: Lolo

Ranger District: Ninemile

Drainage: Stony Cr.

Photo taken: 9/24/76

By: W. C. Fischer


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6

DATA SHEET

Stand No. 66

FOREST COVER TYPE: SAF NO. 213, Grand fir - Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 521, Grand fir/queencup beadlily-queencup beadlily phase (ABGR/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.6	0.13
0.25-1	1.6	0.36
1-3	1.2	0.27
Subtotal 0-3	3.4	0.76
3-6	3.5	0.78
6-10	4.4	0.99
10-20	26.7	5.90
20+	0	0
SUBTOTAL 3+	34.6	7.67
TOTAL	38.0	8.43

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 4.0 in / 10.16 *cm*

Average diameter, 3+fuels: 7.6 in / 19.30 *cm*

Percent rotten, 3+fuels: 50 %

Volume of **sound** 3+fuels: 1382 ft³/ac / 96.7 *m³/ha*

STAND AND SITE DATA

Age of overstory dominants:

PSME	280 yrs
LAOC	256 yrs
PICEA	117 yrs
ABGR	110 yrs

Average slope: 1 %

Aspect: southeast

Elevation: 4180 ft 1274 *m*

Remarks: stream-side

Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: low

Intensity: medium

Torching: low

Crowning: low

Resistance to control: medium

Overall Fire Potential: MEDIUM

STAND LOCATION

National Forest: Lolo

Ranger District: Missoula

Drainage: Rattlesnake Cr.

Photo taken: 7/14/77

By: W. C. Fischer

SERIES 2

WESTERN HEMLOCK, WESTERN HEMLOCK - WESTERN REDCEDAR, AND WESTERN REDCEDAR

SAF COVER TYPES 224, 227, AND 228


9

DATA SHEET

Stand No. 9A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 571, Western hemlock/queencup beadlily-queencup beadlily phase (TSHE/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight Kg/m^2
0-0.25	0.4	0.09
0.25-1	1.1	0.25
1-3	0.5	0.11
Subtotal 0-3	2.0	0.45
3-6	1.8	0.40
6-10	4.6	1.03
10-20	0.5	0.11
20+	0	0
SUBTOTAL 3+	6.9	1.54
TOTAL	8.9	1.99

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
H	8

OTHER FUEL DATA

Average duff depth: 2.8 in / 7.11 *cm*

Average diameter, 3+fuels: 5.5 in / 13.97 *cm*

Percent rotten, 3+fuels: 56 %

Volume of **sound** 3+fuels: 241 ft^3/ac / 16.86 m^2/ha

STAND AND SITE DATA

Age of overstory dominants:

TSHE,THPL	170 yrs
LACO	170 yrs
PIMO	150 yrs
PSME,ABGR	120 yrs

Average slope: 3 %

Aspect: Southwest

Elevation: 2950 ft 899 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: low

Intensity: low

Torching: low

Crowning: low

Resistance to control: low

Overall Fire Potential LOW

STAND LOCATION

National Forest: Kootenai

Ranger District: Libby

Drainage: Quartz Cr.

Photo taken: 6/27/78

By: W. C. Fischer



DATA SHEET

Stand No. 4A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 571, Western hemlock/queencup beadlily-queencup beadlily phase (TSHE/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.6	0.13
0.25-1	1.2	0.27
1-3	1.3	0.29
Subtotal 0-3	3.1	0.69
3-6	4.0	0.90
6-10	2.8	0.63
10-20	1.0	0.22
20+	0	0
SUBTOTAL 3+	7.8	1.75
TOTAL	10.9	2.44

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
H	8

OTHER FUEL DATA

Average duff depth: 2.0 in / 5.08 *cm*

Average diameter, 3+fuels: 4.7 in / 11.94 *cm*

Percent rotten, 3+fuels: 59 %

Volume of **sound** 3+fuels: 250 ft^3/ac / 17.5 m^3/ha

STAND AND SITE DATA

Age of overstory dominants:

LAOC	117 yrs
TSHE	90 yrs
PIMO	90 yrs
ABGR	80 yrs

Average slope: 2 %

Aspect: northeast

Elevation: 2630 ft 799 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: low

Torching: low

Crowning: low

Resistance to control: medium

Overall Fire Potential LOW

STAND LOCATION

National Forest: Kootenai

Ranger District: Libby

Drainage: W. Fk. Quartz Cr.

Photo taken: 6/27/78

By: W. C. Fischer



DATA SHEET

Stand No. 17A

FOREST COVER TYPE: SAF NO. 228, Western redcedar

MONTANA HABITAT TYPE: NO. 532, Western redcedar/queencup beadlily-wild sarsparilla phase (THPL/CLUN-ARNU)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.2	0.04
0.25-1	1.1	0.25
1-3	2.3	0.52
Subtotal 0-3	3.6	0.81
3-6	2.1	0.47
6-10	2.9	0.65
10-20	2.9	0.65
20+	0	0
SUBTOTAL 3+	7.9	1.77
TOTAL	11.5	2.58

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
H	8

OTHER FUEL DATA

Average duff depth: 3.1 in / 7.87 *cm*

Average diameter, 3+fuels: 5.5 in / 13.97 *cm*

Percent rotten, 3+fuels: 28 %

Volume of **sound** 3+fuels: 458 ft^3/ac / 32.1 m^2/ha

STAND AND SITE DATA

Age of overstory dominants:

POTR	100 yrs
THPL	80 yrs
ABGR	60 yrs

Average slope: 3 %

Aspect: southeast

Elevation: 2850 ft 869 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: medium

Torching: nil

Crowning: nil

Resistance to control: medium

Overall Fire Potential MEDIUM

STAND LOCATION

National Forest: Kootenai

Ranger District: Troy

Drainage: Ross Cr.

Photo taken: 6/28/78

By: W. C. Fischer



DATA SHEET

Stand No. 3A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 571, Western hemlock/queencup beadlily-queencup beadlily phase (TSHE/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.4	0.09
0.25-1	1.1	0.25
1-3	1.5	0.34
Subtotal 0-3	3.0	0.68
3-6	1.8	0.40
6-10	4.1	0.92
10-20	4.4	0.99
20+	0	0
SUBTOTAL 3+	10.3	2.31
TOTAL	13.3	2.99

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
H	8

OTHER FUEL DATA

Average duff depth: 2.9 in / 7.73 *cm*

Average diameter, 3+fuels: 6.0 in / 15.24 *cm*

Percent rotten, 3+fuels: 36 %

Volume of **sound** 3+fuels: 527 ft³/ac / 36.9 *m³/ha*

STAND AND SITE DATA

Age of overstory dominants:

Average slope: 2 %

Aspect: northwest

Elevation: 2830 ft 863 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: low

Intensity: low

Torching: nil

Crowning: nil

Resistance to control: low

Overall Fire Potential LOW

STAND LOCATION

National Forest: Kootenai

Ranger District: Libby

Drainage: Quartz Cr.

Photo taken: 6/27/78

By: W. C. Fischer



DATA SHEET

Stand No. 13A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 531, Western redcedar/queencup beadlily-queencup beadlily phase (THPL/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.4	0.09
0.25-1	2.0	0.45
1-3	0.9	0.20
Subtotal 0-3	3.3	0.74
3-6	3.3	0.74
6-10	4.7	1.05
10-20	3.4	0.76
20+	0	0
SUBTOTAL 3+	11.4	2.55
TOTAL	14.7	3.29

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
H/G	8/10

OTHER FUEL DATA

Average duff depth: 3.5 in / 8.89 *cm*

Average diameter, 3+fuels: 5.3 in / 13.46 *cm*

Percent rotten, 3+fuels: 67 %

Volume of **sound** 3+fuels: 299 ft^3/ac / 20.9 m^3/ha

STAND AND SITE DATA

Age of overstory dominants:

PSME	100 yrs
THPL	95 yrs
ABGR	85 yrs
LACO	80 yrs

Average slope: 5 %

Aspect: southwest

Elevation: 3080 ft 939 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: medium

Torching: low

Crowning: low

Resistance to control: medium

Overall Fire Potential MEDIUM

STAND LOCATION

National Forest: Kootenai

Ranger District: Libby

Drainage: Quartz Cr.

Photo taken: 6/27/78

By: W. C. Fischer


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DATA SHEET

Stand No. 6A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 531, Western redcedar/queencup beadlily-queencup beadlily phase (THPL/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.4	0.09
0.25-1	1.7	0.38
1-3	1.1	0.25
Subtotal 0-3	3.2	0.72
3-6	2.2	0.49
6-10	2.8	0.63
10-20	4.2	0.94
20+	4.6	1.03
SUBTOTAL 3+	13.8	3.09
TOTAL	17.0	3.81

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
H	8

OTHER FUEL DATA

Average duff depth: 3.1 in / 7.87 *cm*

Average diameter, 3+fuels: 6.5 in / 16.51 *cm*

Percent rotten, 3+fuels: 86 %

Volume of **sound** 3+fuels: 152 ft^3/ac / 10.6 m^3/ha

STAND AND SITE DATA

Age of overstory dominants: TSHE 200 yrs

Average slope: 29 %

Aspect: northwest

Elevation: 3080 ft 939 *m*

Remarks:

Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: low

Torching: low

Crowning: nil

Resistance to control: medium

Overall Fire Potential: LOW

STAND LOCATION

National Forest: Kootenai

Ranger District: Libby

Drainage: W. Fk. Quartz Cr.

Photo taken: 6/27/78

By: W. C. Fischer



DATA SHEET

Stand No. 18A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 531, Western redcedar/queencup beadlily-queencup beadlily phase (THPL/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.6	0.13
0.25-1	1.8	0.40
1-3	2.1	0.47
Subtotal 0-3	4.5	1.00
3-6	5.6	1.26
6-10	2.8	0.63
10-20	0.5	0.11
20+	4.3	0.96
SUBTOTAL 3+	13.2	2.96
TOTAL	17.7	3.96

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 1.9 in / 4.83 *cm*

Average diameter, 3+fuels: 4.6 in / 11.68 *cm*

Percent rotten, 3+fuels: 5 %

Volume of **sound** 3+fuels: 999 ft³/ac / 69.9 *m³/ha*

STAND AND SITE DATA

Age of overstory dominants:

PSME	90 yrs
THPL	80 yrs
LACO	80 yrs
ABGR	80 yrs

Average slope: 3 %

Aspect: southwest

Elevation: 2850 ft 869 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: medium

Torching: low

Crowning: low

Resistance to control: medium

Overall Fire Potential MEDIUM

STAND LOCATION

National Forest: Kootenai

Ranger District: Troy

Drainage: Ross Cr.

Photo taken: 6/28/78

By: W. C. Fischer



DATA SHEET

Stand No. 10A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 572, Western hemlock/queencup beadlily-wild sarsaparilla phase (TSHE/CLUN-ARNU)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.4	0.09
0.25-1	1.5	0.34
1-3	1.4	0.31
Subtotal 0-3	3.3	0.74
3-6	1.4	0.31
6-10	6.8	1.52
10-20	4.6	1.03
20+	1.9	0.43
SUBTOTAL 3+	14.7	3.29
TOTAL	18.0	4.03

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 4.0 in / 10.16 *cm*

Average diameter, 3+fuels: 6.8 in / 17.27 *cm*

Percent rotten, 3+fuels: 46 %

Volume of **sound** 3+fuels: 641 ft³/ac / 44.9 *m³/ha*

STAND AND SITE DATA

Age of overstory dominants:

LACO	125 yrs
THPL	85 yrs
ABGR	85 yrs

Average slope: 2 %

Aspect: southwest

Elevation: 3000 ft 914 *m*

Remarks:

Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: medium

Torching: medium

Crowning: low

Resistance to control: low

Overall Fire Potential MEDIUM

STAND LOCATION

National Forest: Kootenai

Ranger District: Libby

Drainage: W. Fk. Quartz Cr.

Photo taken: 6/27/78

By: W. C. Fischer



DATA SHEET

Stand No. 7A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 531, Western redcedar/queencup beadlily-queencup beadlily phase (THPL/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.4	0.09
0.25-1	1.7	0.38
1-3	3.2	0.72
Subtotal 0-3	5.3	1.19
3-6	1.7	0.38
6-10	7.9	1.77
10-20	4.6	1.03
20+	0	0
SUBTOTAL 3+	14.2	3.18
TOTAL	19.5	4.37

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
H/G	8/10

OTHER FUEL DATA

Average duff depth: 3.5 in / 8.89 *cm*

Average diameter, 3+fuels: 6.5 in / 16.51 *cm*

Percent rotten, 3+fuels: 45 %

Volume of **sound** 3+fuels: 625 ft^3/ac / 43.7 m^3/ha

STAND AND SITE DATA

Age of overstory dominants:

THPL	210 yrs
PIMO	140 yrs
TSHE	140 yrs

Average slope: 4 %

Aspect: northwest

Elevation: 2720 ft 829 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: low

Intensity: medium

Torching: low

Crowning: nil

Resistance to control: medium

Overall Fire Potential MEDIUM

STAND LOCATION

National Forest: Kootenai

Ranger District: Libby

Drainage: W. Fk. Quartz Cr.

Photo taken: 6/27/78

By: W. C. Fischer



DATA SHEET

Stand No. 19A

FOREST COVER TYPE: SAF NO. 227, Wester redcedar - Wester hemlock

MONTANA HABITAT TYPE: NO. 571, Western hemlock/queencup beadlily-queencup beadlily phase (TSHE/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.3	0.07
0.25-1	1.2	0.27
1-3	1.6	0.36
Subtotal 0-3	3.1	0.70
3-6	5.3	1.19
6-10	9.5	2.13
10-20	2.5	0.56
20+	0	0
SUBTOTAL 3+	17.3	3.88
TOTAL	20.4	4.58

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
H	8

OTHER FUEL DATA

Average duff depth: 1.5 in, 3.81 *cm*

Average diameter, 3+fuels: 5.1 in, 12.95 *cm*

Percent rotten, 3+fuels: 21 %

Volume of **sound** 3+fuels: 1096 ft³/ac, 76.7 *m³/ha*

STAND AND SITE DATA

Age of overstory dominants:

THPL	85 yrs
LACO	85 yrs
TSHE	80 yrs
ABGR	70 yrs

Average slope: 2 %

Aspect: southeast

Elevation: 2590 ft 789 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: low

Intensity: low

Torching: low

Crowning: low

Resistance to control: low

Overall Fire Potential LOW

STAND LOCATION

National Forest: Kootenai

Ranger District: Troy

Drainage: Ross Cr.

Photo taken: 6/28/78

By: W. C. Fischer



DATA SHEET

Stand No. 11A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 532, Western redcedar/queencup beadlily-wild sarsparilla (THPL/CLUN-ARUV)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.4	0.09
0.25-1	1.2	0.27
1-3	1.1	0.25
Subtotal 0-3	2.7	0.61
3-6	1.1	0.25
6-10	7.0	1.57
10-20	8.6	1.93
20+	1.4	0.31
SUBTOTAL 3+	18.1	4.06
TOTAL	20.8	4.66

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
H	8

OTHER FUEL DATA

Average duff depth: 2.4 in, 6.10 *cm*

Average diameter, 3+fuels: 7.6 in, 19.30 *cm*

Percent rotten, 3+fuels: 48 %

Volume of **sound** 3+fuels: 754 ft^3/ac, 52.8 m^3/ha

STAND AND SITE DATA

Age of overstory dominants:

ABGR	120 yrs
THPL	108 yrs
PSME	103 yrs

Average slope: 3 %

Aspect: southwest

Elevation: 2950 ft 899 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: low

Intensity: low

Torching: low

Crowning: low

Resistance to control: low

Overall Fire Potential LOW

STAND LOCATION

National Forest: Kootenai

Ranger District: Libby

Drainage: Quartz Cr.

Photo taken: 6/27/78

By: W. C. Fischer



DATA SHEET

Stand No. 5A

FOREST COVER TYPE: SAF NO. 224, Western hemlock

MONTANA HABITAT TYPE: NO. 571, Western hemlock/queencup beadlily-queencup beadlily phase (TSHE/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.6	0.13
0.25-1	1.2	0.27
1-3	0.8	0.18
Subtotal 0-3	2.6	0.58
3-6	4.7	1.05
6-10	15.5	3.47
10-20	0.9	0.20
20+	0	0
SUBTOTAL 3+	21.1	4.72
TOTAL	23.7	5.30

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 2.2 in / 5.59 *cm*

Average diameter, 3+fuels: 5.6 in / 14.22 *cm*

Percent rotten, 3+fuels: 35 %

Volume of **sound** 3+fuels: 1093 ft³/ac / 76.5 *m³/ha*

STAND AND SITE DATA

Age of overstory dominants:

TSHE	95 yrs
PIMO	85 yrs

Average slope: 2 %

Aspect: southwest

Elevation: 2770 ft 844 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: medium

Torching: low

Crowning: low

Resistance to control: high

Overall Fire Potential MEDIUM

STAND LOCATION

National Forest: Kootenai

Ranger District: Libby

Drainage: W. Fk. Quartz Cr.

Photo taken: 6/27/78

By: W. C. Fischer


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DATA SHEET

Stand No. 8A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 571, Western hemlock/queencup beadlily-queencup beadlily phase (TSHE/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.7	0.16
0.25-1	2.1	0.47
1-3	3.1	0.69
Subtotal 0-3	5.9	1.32
3-6	5.4	1.21
6-10	3.9	0.87
10-20	7.8	1.75
20+	4.1	0.92
SUBTOTAL 3+	21.2	4.75
TOTAL	27.1	6.07

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 3.0 in / 7.62 *cm*

Average diameter, 3+fuels: 5.6 in / 14.22 *cm*

Percent rotten, 3+fuels: 61 %

Volume of **sound** 3+fuels: 648 ft³/ac / 45.3 *m³/ha*

STAND AND SITE DATA

Age of overstory dominants:

THPL	210 yrs
TSHE	119 yrs

Average slope: 30 %

Aspect: northwest

Elevation: 2750 ft 838 *m*

Remarks: Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: high

Torching: low

Crowning: low

Resistance to control: high

Overall Fire Potential HIGH

STAND LOCATION

National Forest: Kootenai

Ranger District: Libby

Drainage: W. Fk. Quartz Cr.

Photo taken: 6/27/78

By: W. C. Fischer



DATA SHEET

Stand No. 16A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 571, Western hemlock/queencup beadlily-queencup beadlily phase (TSHE/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight *Kg/m²*
0-0.25	0.6	0.13
0.25-1	2.2	0.49
1-3	2.5	0.56
Subtotal 0-3	5.3	1.18
3-6	9.3	2.08
6-10	21.1	2.71
10-20	3.2	0.72
20+	0	0
SUBTOTAL 3+	24.6	5.51
TOTAL	29.9	6.69

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 5.3 in / 13.46 *cm*

Average diameter, 3+fuels: 5.1 in / 12.95 *cm*

Percent rotten, 3+fuels: 40 %

Volume of **sound** 3+fuels: 1185 ft³/ac / 82.9 *m²/ha*

STAND AND SITE DATA

Age of overstory dominants:

PICEA	85 yrs
TSHE	75 yrs
ABGR	75 yrs

Average slope: 2 %

Aspect: northwest

Elevation: 2880 ft 878 *m*

Remarks: Natural Area

Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: medium

Torching: low

Crowning: low

Resistance to control: medium

Overall Fire Potential MEDIUM

STAND LOCATION

National Forest: Kootenai

Ranger District: Troy

Drainage: Ross Cr.

Photo taken: 6/28/78

By: W. C. Fischer



DATA SHEET

Stand No. 15A

FOREST COVER TYPE: SAF NO. 227, Western redcedar - Western hemlock

MONTANA HABITAT TYPE: NO. 550, Western redcedar/devil's club (THPL/OPHP)

DOWN & DEAD WOODY FUEL LOADINGS

Size Class (Inches)	Weight T/ac	Weight Kg/m^2
0-0.25	0.2	0.04
0.25-1	1.1	0.25
1-3	1.0	0.22
Subtotal 0-3	2.3	0.51
3-6	0.4	0.09
6-10	1.3	0.29
10-20	3.2	0.72
20+	50.4	11.30
SUBTOTAL 3+	55.3	12.40
TOTAL	57.6	12.91

NFDRS FUEL MODEL	STYLIZED FUEL MODEL
G	10

OTHER FUEL DATA

Average duff depth: 2.8 in, 7.11 *cm*

Average diameter, 3+fuels: 16.6 in, 42.16 *cm*

Percent rotten, 3+fuels: 40 %

Volume of **sound** 3+fuels: 2647 ft^3/ac, 185.2 m^3/ha

STAND AND SITE DATA

Age of overstory dominants: THPL 400+ yrs

Average slope: 2 %

Aspect: northeast

Elevation: 2860 ft 872 *m*

Remarks: Natural Area

Fire Ecology Group Eleven

FIRE POTENTIAL RATING

Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain

Rate of Spread: low

Intensity: low

Torching: nil

Crowning: nil

Resistance to control: medium

Overall Fire Potential LOW

STAND LOCATION

National Forest: Kootenai

Ranger District: Troy

Drainage: Ross Cr.

Photo taken: 6/28/78

By: W. C. Fischer

☆ U.S. GOVERNMENT PRINTING OFFICE: 1981-0-781-749

Fischer, William C.
1981. Photo guide for appraising downed woody fuels in Montana forests: Grand fir - larch - Douglas-fir, western hemlock, western redcedar - western hemlock, and western redcedar cover types. USDA For. Serv. Gen. Tech. Rep. INT-96, 53p. Intermt. For. and Range Exp. Stn., Ogden, Utah 84401.

Four series of color photographs show different levels of downed woody material resulting from natural processes in four forest cover types in Montana. Each photo is supplemented by fuel inventory data and potential fire behavior ratings.

KEYWORDS: forest fuels, fire behavior, fire hazard, fuel appraisal

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The Intermountain Station, headquartered in Ogden, Utah, is one of eight regional experiment stations charged with providing scientific knowledge to help resource managers meet human needs and protect forest and range ecosystems.

The Intermountain Station includes the States of Montana, Idaho, Utah, Nevada, and western Wyoming. About 231 million acres, or 85 percent, of the land area in the Station territory are classified as forest and rangeland. These lands include grasslands, deserts, shrublands, alpine areas, and well-stocked forests. They supply fiber for forest industries; minerals for energy and industrial development; and water for domestic and industrial consumption. They also provide recreation opportunities for millions of visitors each year.

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